REMARKS

No claims have been amended, and claims 1-4 and 7-31 are pending and under consideration. No new matter is presented in this Amendment.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent 3,811,900).

In response to the previously filed amendment, the Examiner has additionally cited Yamashita and Fassell in an apparent attempt to demonstrate that the pyrolitic boron nitride of Chow is a heat resistant layer within the meaning of the recitation of claim 1. However, such assertion is in direct contravention to the reasoning of the August 3, 2009, opinion of the Board of Patent Appeals and Interferences, which states:

> [T]here is no certainty that the protective layer 25' of Chow impedes a heat transfer, since it is made from pyrolytic boron nitride like the rest of the crucible and cover. Since this substance transmits heat from the heaters in the lid into the internal space of the crucibles without touching the molten material, it is reasonable to assume that the pyrolytic boron nitride is not a heat resistant layer ***as [the Applicants] define the term***. Therefore, not only is the Examiner's claim construction of "heat resistant layer unreasonably broad, but using the Examiner's broad claim construction, there is not evidence that Chow would meet the broad construction.

With the addition of Yamashita and Fassell to the rejection, the Examiner has not adopted the interpretation of the heat resistant layer as required by the Board but merely set to demonstrate that pyrolytic boron nitride has heat resistant properties. However, as the Board has decided, even if pyrolytic boron nitride has heat resistant properties, such properties do not correlate with the terms as defined by the Applicants. Therefore, asserting references that disclose that pyrolytic boron nitride has heat resistant properties does not cure the Examiner's unreasonably broad interpretation of the features as recited in claim 1.

Further, assuming, *arguendo*, that pyrolytic boron nitride has heat resistant properties within a reasonable interpretation of the features as recited in claim 1, the resultant crucible would be inoperable for its intended purpose. As the Board recognized, the crucible and cover

of Chow are formed of pyrolytic boron nitride, but the heaters transmit heat into the internal space of the crucible without touching the molten material. If the pyrolytic boron nitride had the heat resistant properties as defined by the Applicants, the resultant crucible would be inoperable because the layers formed of pyrolytic boron nitride would block any transmission of heat generated by the heaters. Specifically, as shown in FIG. 2, the outer heating element 24' of Chow is encased between "insulating layer 23', of pyrolytic boron nitride" and "pyrolytic boron nitride outer protective layer 25'" (Col. 5, lines 42-47) such that the outer heating element 24' would be rendered ineffective as a heater. Therefore, one having skill in the art at the time of invention would have understood that the heat resistant properties of the pyrolytic boron nitride of Chow would not have met the features of the heat resistant layer as recited in claim 1 and as defined by the Applicants.

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); and MPEP §2143.01(V). Because the Examiner has failed to present a prima facie case of obviousness, it is respectfully requested that this rejection be withdrawn and that claim 1 be allowed.

Claims 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 depend upon and incorporate the features of independent claim 1. If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); and MPEP §2143.03. Therefore, it is respectfully requested that these rejections be withdrawn and that claims 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 be allowed to issue.

Claims 3, 14, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent 3,811,900) as applied to claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 above, and further in view of Kano et al. (U.S. Patent 6,242,719).

Claims 7, 8, 15, 25, and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent

3,811,900) as applied to claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 above, and further in view of Kawase (U.S. Patent 5,656,077) or Tanabe et al. (U.S. Patent 6,296,894).

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent 3,811,900) as applied to claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 above, and further in view of Okuda et al. (U.S. Patent 4,804,823).

Claim 20 is rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent 3,811,900) as applied to claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 above, and further in view of Takagi (U.S. Patent 4,217,855).

Claim 27 is rejected under 35 U.S.C. §103(a) as being unpatentable over Chow (U.S. Patent 5,157,240) in view of Chandler (U.S. Patent 2,799,764) or Isaacson et al. (U.S. Patent 3,842,241), and Yamashita et al. (U.S. Patent 5,034,200) or Fassell (U.S. Patent 3,811,900) as applied to claims 1, 2, 4, 9, 11-13, 16-18, 21-24, and 29-31 above, and further in view of Chen et al. (U.S. Patent 6,024,799) or Murakami et al. (U.S. Patent 5,728,223).

Claims 3, 7, 8, 10, 14, 15, and 19, 20, and 25-27 each ultimately depend upon independent claim 1 and incorporate the features thereof. Because each of the rejections of claims 3, 7, 8, 10, 14, 15, and 19, 20, and 25-27 as described immediately above relies upon the Examiner's inappropriate application of Chow (U.S. Patent 5,157,240), each of the above rejections fails. If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); and MPEP §2143.03. Further, none of the additionally cited references cure the deficiencies of Chow with respect to claim 1 such that no additional comments are necessary. Therefore, it is respectfully requested that these rejections be withdrawn and that claims 3, 7, 8, 10, 14, 15, and 19, 20, and 25-27 be allowed to issue.

ALLOWABLE SUBJECT MATTER:

Claim 28 is allowed over prior art of record.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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